

Work Order ID 85871

June-18-12 7:36:41 AM

85871

Page 1

Item ID: D212-664-201TRN

Accept

N9000040100

Setup Start ***NS1***

Revision ID:

Item Name: Crosstube Turning Detail

Stop ***NS2***

Start Date: 18/06/2012 Start Qty: 1.00

1

Cust Item ID:

Required Date: 02/07/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: HLJ

Date: 12/06/12

Tooling:

Date:

Run Start ***NR1***

QC:

Date:

SPC (Y/N):

Date:

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr

Revision Nbr

D212-664-241

Rev D

100

0.00

100

MORI SEIKI CNC LATHE LARGE

Mori Seiki

Memo

0.00

Mori Seiki CNC Lathe Large

1-Fill tube with sand & install plugs DT8534 on both ends as per Folio FA114

2-Turn first side as per Folio FA114

3-Blend transition lines only, **do not sand whole tube**

FOLIO REV: AD

DWG REV: D

*Use mill bastard file, brush file repeatedly with file card.

*Do not use sandpaper coarser than 320 grit.

1 Ø KC 12-6-20

PTO

110

QC1- Inspect dimensions to dimension sheet

0.00

110

QC

Memo

0.00

Quality Control

1 0 KC 12-6-20

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA: Sub Date: 12/11/10

QA Closed: ck Date:

Work Order: <u>85871</u> Part No. <u>D212-664-201TRN</u> NCR No. <u>12-2023</u>	DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input checked="" type="checkbox"/> Work Order Update <input type="checkbox"/>	AGAINST DEPARTMENT/PROCESS <table style="width:100%;"> <tr> <td>Skid-tube <input type="checkbox"/></td> <td>Crosstube <input checked="" type="checkbox"/></td> <td>Water Jet <input type="checkbox"/></td> <td>Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table>	Skid-tube <input type="checkbox"/>	Crosstube <input checked="" type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>	
Skid-tube <input type="checkbox"/>	Crosstube <input checked="" type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>															
Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>															
Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>															
Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>																

Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data <input type="checkbox"/>	12.10.31	100	1	Tube was ground to Remove tooling chatter. Dims in affected area are $\phi 2.970$ O.D. (-0.002 below dwg) & 0.359 WALL (-0.017 below dwg).	DAS 12 2-89 12.10.31	Acceptable. Critical area of tube is at Support, 0.002" reduction in O.D. is trivial considering difference in bending moments. Wall thickness is within tol. of raw material	12.10.31	12.11.09	12.11.09
Equip/Tooling <input type="checkbox"/>									
Operator <input type="checkbox"/>									
Material <input type="checkbox"/>									
Setup <input type="checkbox"/>									
Other <input type="checkbox"/>									
Process <input type="checkbox"/>									
Supplier <input type="checkbox"/>									
Training <input type="checkbox"/>									
Unapproved <input type="checkbox"/>									

FAULT CATEGORY

Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio	<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions
---	---	---

<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge	<input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled	<input checked="" type="checkbox"/> Other <div style="border: 1px solid black; padding: 5px; margin-top: 5px;"> MACHINING PROCESS TOOL CHATTER / SPEED? </div>
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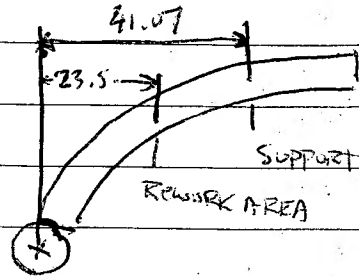
~~I = 74 (3.25^4)~~

D212-664-241 BIN 85871

$$I_{\text{SUPPORT}} = \frac{\pi}{64} (3.25^4 - 2.22^4)$$

$$I_{\text{REWORK}} = \frac{\pi}{64} (2.97^4 - 2.22^4)$$

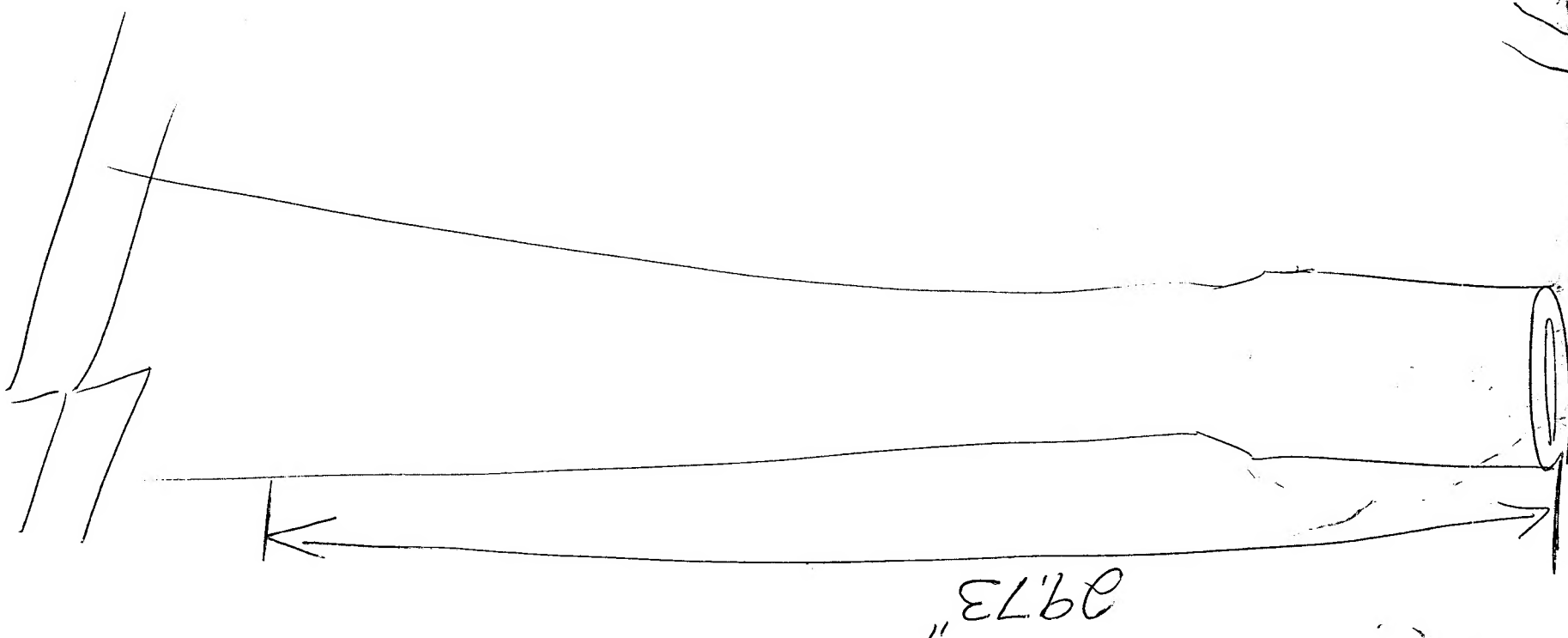
$$F = \frac{M \cdot C}{I} = \frac{P \cdot d \cdot c}{I}$$



$$M.S. = F_{\text{SUPPORT}} / F_{\text{REWORK}} - 1 = \frac{41.07 \times 3.25}{(3.25^4 - 2.22^4)} \cdot \frac{(2.97^4 - 2.22^4)}{23.5 \times 2.97} - 1$$
$$= 0.17$$

OW tube will fail at support in bending before rework area. ACCEPTABLE 4/12/10.31

DART



825871

Work Order ID 85871

85871

Page 2

June-18-12 7:36:41 AM

Item ID: D212-664-201TRN

Accept

N900040100

Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Crosstube Turning Detail

Start Date: 18/06/2012 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 02/07/2012 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: Date: Tooling: Date:

Run Start ***NR1***

QC: Date: SPC (Y/N): Date:

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120		0.00							
120	MORI SEIKI CNC LATHE LARGE								
Mori Seiki	Memo	0.00							
Mori Seiki CNC Lathe Large	1-Turn second side as per Folio FA114								
	2-Blend transition lines only, **do not sand whole tube**: *Use mill bastard file, brush file repeatedly with file card. *Do not use sandpaper coarser than 320 grit. FOLIO REV: <u>AD</u> DWG REV: <u>D</u> 3-Remove sand and plugs								
	4- scribe batch # and part # as per dwg								
130									
130	QC1- Inspect dimensions to dimension sheet	0.00							
QC	Memo	0.00							
Quality Control									

1 / ~~0~~ KC 12-6-20

1 / ~~0~~ KC 12-6-20

Work Order ID 85871

June-18-12 7:36:41 AM

85871

Page 3

Item ID: D212-664-201TRN

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Crosstube Turning Detail

Start Date: 18/06/2012 Start Qty: 1.00

1

Cust Item ID:

Required Date: 02/07/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140	QC8- Inspect parts - second check	0.00							
140									
QC	Memo	0.00							
Quality Control									
145		0.00							
145									
Crosstubes	Memo	0.00							
Crosstubes	GRIND ONLY TRANSITION LINES SMOOTH LONGITUDE WAY.								
150	Crosstubes Chemical Conversion	0.00							
150									
HandFXtube	Memo	0.00							
Hand Finishing Crosstubes									

JW 12-11-1

MO 12/11/08

Work Order ID 85871

June-18-12 7:36:41 AM

85871

Page 4

Item ID: D212-664-201TRN

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Crosstube Turning Detail

Start Date: 18/06/2012 Start Qty: 1.00

1

Cust Item ID:

Required Date: 02/07/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID Tool # Plan Code Accept Reject Reject Insp.
Qty Qty Number Stamp

160

QC7-Inspect Chemical Conversion Coat

0.00

160

QC

Memo

0.00

Quality Control



12-11-8

170

Packaging

0.00

170

Packaging

Memo

0.00

Packaging

Identify and stock in kanban rack
Location: LG

MO

12/11/08

180

QC21- Final Inspection - Work Order Release

0.00

180

QC

Memo

0.00

Quality Control

12/11/8

ML5 12-11-08

Picklist Print

June-18-12 7:36:51 AM

Page 1

Work Order ID: 85871

85871

Parent Item: D212-664-201TRN

D212-664-201TRN

Parent Item Name: Crosstube Turning Detail

Start Date: 18/06/2012

Required Date: 02/07/2012

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:A 08-03-06 new issue DD verified by:ec
IPP Rev B 08.04.02 Removed polish EC verified DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6006-129		Manufactured	No			120	Each	27.0000	1	1			

D6006-129

Crosstube Material

**

Location

Loc Qty

Loc Code

LG

27

23970

2

26550

3

34690

1

69838

21

KE 12-6-20

DART AEROSPACE LTD		Work Order:	85871
Description: Crosstube Assembly (205/212 High Aft)		Part Number:	D212-664-241
Inspection Dwg: D212-664-241 Rev: D		Page 1 of 2	

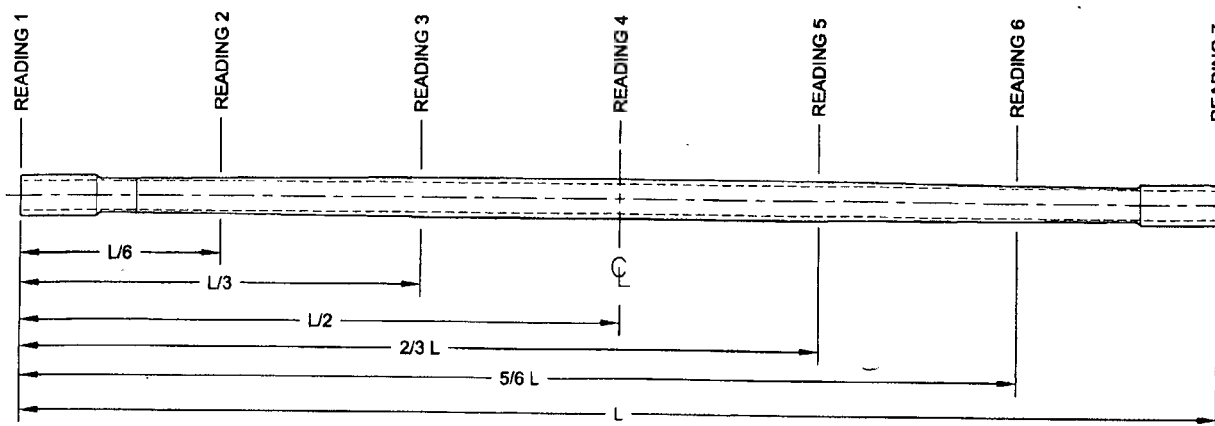
FIRST ARTICLE INSPECTION CHECKLIST

	Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	0.200	+/-0.010	2.00	✓		VERN	CNC-08
	R0.063	+/-0.010	.063	✓		RL	
	2.990	+0.005/-0.000	2.993			VERN	CNC-08
	5.237	+/-0.030	5.237				
	2.600	+0.005/-0.000	2.604				
	2.686	+0.005/-0.000	2.691				
	2.770	+0.005/-0.000	2.775				
	2.854	+0.005/-0.000	2.859				
	2.938	+0.005/-0.000	2.943				
	3.021	+0.005/-0.000	3.026				
	3.133	+0.005/-0.000	3.137				
	3.179	+0.005/-0.000	3.184				
SIDE B	0.200	+/-0.010	2.00	✓		VERN	CNC-08
	R0.063	+/-0.010	.063	✓		RL	
	2.990	+0.005/-0.000	2.993			CNC Vern	CNC-08
	5.237	+/-0.030	5.237				
	2.600	+0.005/-0.000	2.604				
	2.686	+0.005/-0.000	2.691				
	2.770	+0.005/-0.000	2.774				
	2.854	+0.005/-0.000	2.859				
	2.938	+0.005/-0.000	2.943				
	3.021	+0.005/-0.000	3.022				
	3.133	+0.005/-0.000	3.136				
	3.179	+0.005/-0.000	3.183				
	124.362	+/-0.020	124.362			tape	L6-25

100

DART AEROSPACE LTD	Work Order: 85871
Description: Crosstube Assembly (205/212 High Aft)	Part Number: D212-664-241
Inspection Dwg: D212-664-241 Rev: D	Page 2 of 2

WALL THICKNESS MEASUREMENT



Location	WALL THICKNESS MEASUREMENT (IN)				Deviation Δw (max-min)	TOLERANCE
	w1	w2	w3	w4		
READING 1 L = 0"						0.062"
READING 2 L = 20"	.324	.287	.281	.318	.043	
READING 3 L = 40"	.465	.455	.462	.477	.022	
READING 4 L =						
READING 5 L = 40"	.470	.479	.462	.452	.027	
READING 6 L = 20"	.293	.325	.316	.280	.045	
READING 7 L =						

Calibration Result

Actual Block Thickness: 100-500

Sitiescan 250 Measured Thickness: 100-500

Measured by: KC
Date: 12-6-20

Audited by: JW
Date: 12-11-1

Preliminary Approval:
Date:

Rev	Date	Change	Revised by	Approved
A	05.04.27	New Issue (P/O D412-664-201)	KJ/JLM	
B	06.03.09	Tolerance for 5.237 was +/-0.001	KJ/JLM	
C	07.05.08	Dwg Rev. updated	KJ/JLM	
D	10.08.03	Dimension 124.362 was 124.36	KJ	
E	12.06.04	Wall thickness form added	KJ	

Item	Qty -241	Qty -241B	Part Number	Description
1	X		D212-664-241	CROSSTUBE ASSEMBLY (205/212 HIGH AFT)
2		X	D212-664-241B	CROSSTUBE ASSEMBLY (214 HIGH AFT)
3	1	1	D6006-129	CROSSTUBE
4	2	2	D2940-1	SUPPORT
5	4	4	D3595-063-530	RUBBER CUSHION
6	4	4	MS21920-28	CLAMP (OR MS21920-30)
7	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6006-129
FINISHED LENGTH = 124.362±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER 'D212-664-XXX' AND BATCH NUMBER ON INSIDE OF CUFF
USING VIBRATING STYLUS.
- 7) WEIGHT: D212-664-241 = 44.2 lbs (PER IIN-D212-664)
D212-664-241B = 44.2 lbs (PER IIN-D212-664)
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALLY. TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 5 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING
IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038
- 12) INSTALL D2940-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE
OF D2940-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS
AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-28 CLAMPS (OR -30) WITH D3595-063-530 RUBBER CUSHIONS TO SECURE THE D2940-1
SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE
SUPPORT
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE
SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR
DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND
MARKS ARE UNACCEPTABLE
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT
HAS NOT BOTTOMED-OUT AFTER TORQUING

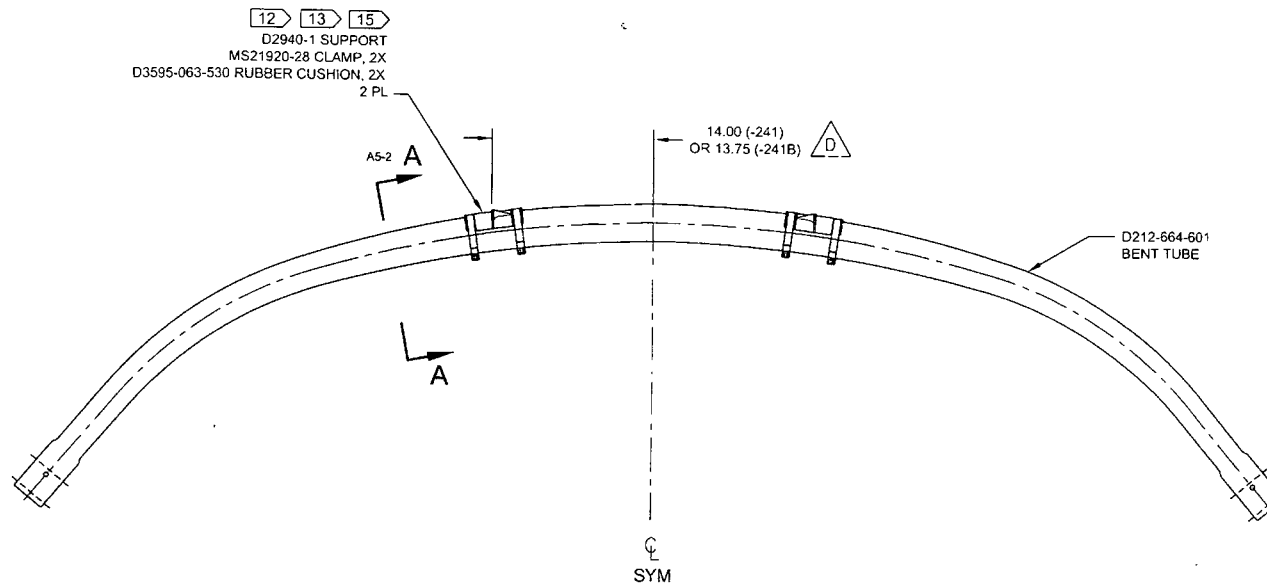
SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 85871 MLJ
12/06/18

600 #11-614
11.08.28
UNDER REVIEW
11/06/18

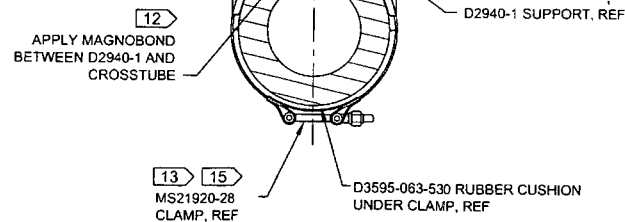
DEO ATTACHED

RELEASED
2009 -10-29
WJ

D	REFORMAT/REVISE GENERAL NOTES/PART LIST; REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS; ADD -241B (ZN D4-2, B4-2); REMOVED REF & ADD TOLERANCES (ZN D8-3 & C4-3, C6-3 & A8-3); RELOCATED FLAG #6 PER PAR 08-046 (ZN A5-3); MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4	RF	09.09.30
C	REMOVE -1009 ABRASION STRIP; ADD MAGNOBOND 6398, CUSHION, REVERSE CLAMPS	PH	07.03.08
B	ADD HOLES FOR COMPATABILITY WITH BHT/AA SKIDTUBES	PH	05.02.04
A	NEW ISSUE	PH	00.12.12
REV.	DESCRIPTION	BY	DATE
DESIGN	<u>PH</u>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	<u>RF</u>		
CHECKED	<u>PH</u>	DRAWING NO.	REV. D
MFG. APPR.	<u>PH</u>	D212-664-241	SHEET 1 OF 4
APPROVED	<u>PH</u>	TITLE	SCALE
DE APPR.	<u>PH</u>	CROSSTUBE ASS'Y (205/212 HI AFT)	NTS
DATE	09.09.30	COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL, AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD	



**D212-664-241/-241B
ASSEMBLY DETAIL** D



SECTION A-A D6-2
SCALE 4X

05071

600411-614
11.07.26
UNDER REVIEW
06.13

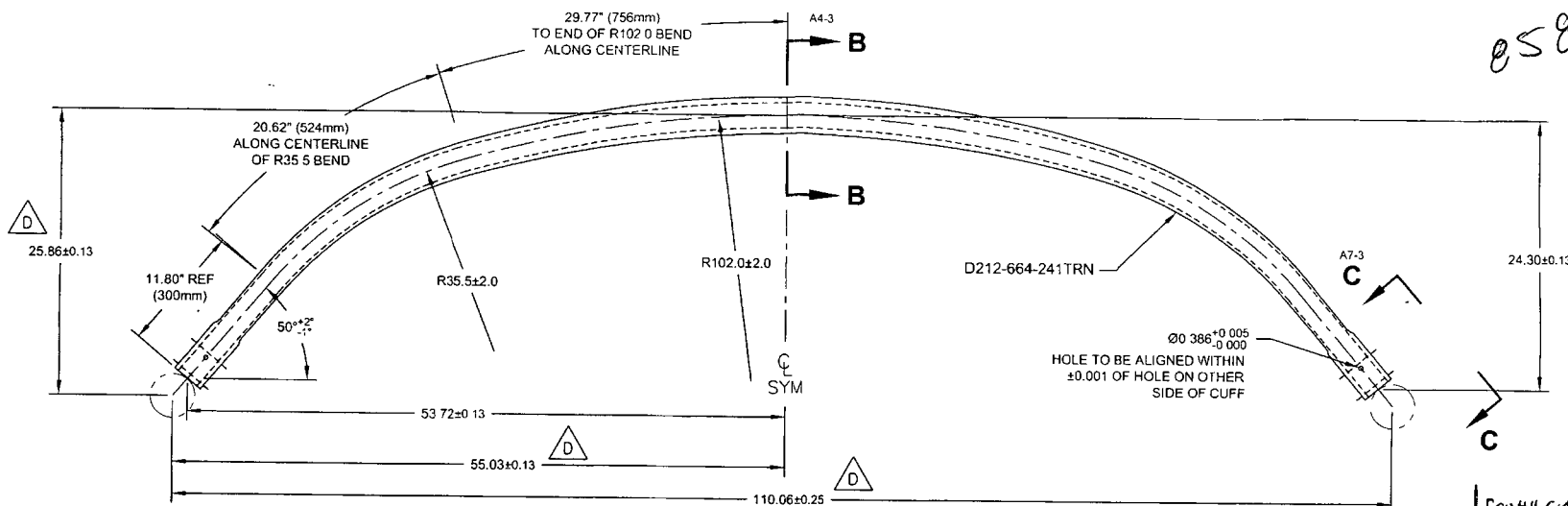
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RELEASED
2009-10-28

DESIGN	PH	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	JP	DRAWING NO.	REV. D
MFG. APPR.	JS	D212-664-241	SHEET 2 OF 4
APPROVED	JP	TITLE	SCALE
DE APPR.	JP	CROSSTUBE ASS'Y (205/212 HI AFT)	NTS
DATE	09.09.30	<small>COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD</small>	

8 7 6 5 4 3 2 1

05871



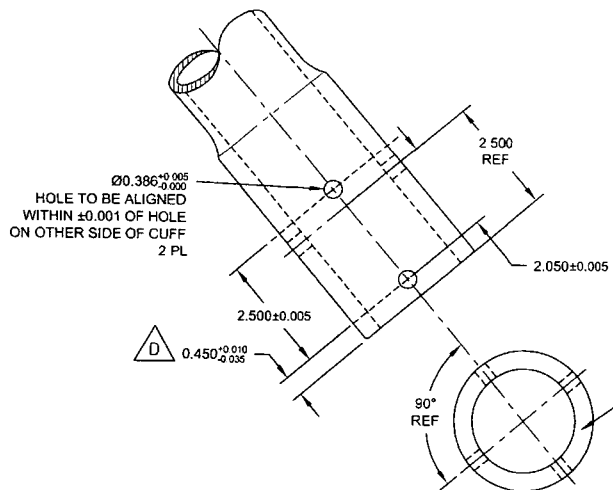
D212-664-601 10 **BENDING AND DRILLING DETAIL**

ECW H11-64
K07.28

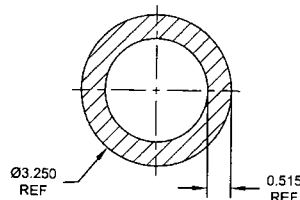
UNDER REVIEW
4/11/66

DEO ATTACHED

RELEASED
2009-10-28



VIEW C-C: CUFF DETAIL D2-3
SCALE 3X



SECTION B-B D4-3
SCALE 4X

DESIGN	PH	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	JP	DRAWING NO.	REV. D
MFG. APPR.	JP	D212-664-241	SHEET 3 OF 4
APPROVED	JP	TITLE	SCALE
DE APPR.	JP	CROSSTUBE ASS'Y (205/212 HI AFT)	NTS
DATE	09.09.30	<small>COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL, AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

8 7 6 5 4 3 2 1

0.376 - 0446

23.5-38.

R100.0 TRANSITION
BETWEEN TAPERED
SECTIONS

R100.0 TRANSITION
BETWEEN TAPERED
SECTIONS

SEE DETAIL D

0.515 WALL
STOCK, REF

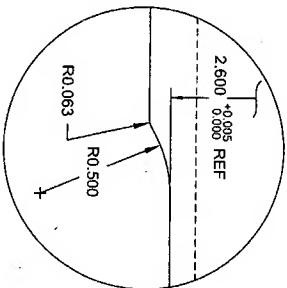
30° X 0.500 DEEP
CHAMFER

DETAIL D:
CROSTUBE CUFF

SCALE 5X

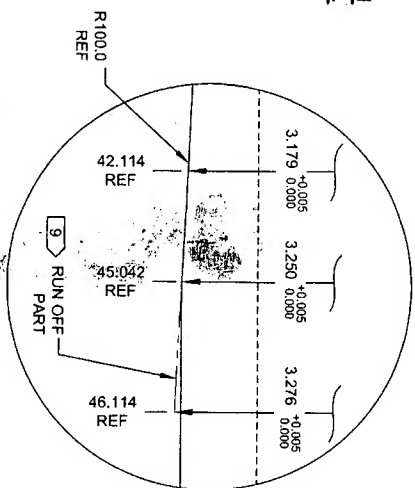
9 3.179 ± 0.005
TAPER UNIFORMLY FROM
THROUGH TO 3.276 ± 0.005
RUNNING OFF PART

D212-664-241TRN
TURNING DETAIL



DETAIL F:
CUFF TRANSITION

SCALE 10X



DETAIL E:
TAPER RUN OFF

NOT TO SCALE

DESIGN	RF	DART AEROSPACE LTD
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA
CHECKED	RF	DRAWING NO.
MFG. APPR.	RF	D212-664-241
APPROVED	RF	TITLE
DE APPR.	RF	CROSTUBE ASSY (205/212 HI AFT)
DATE	09.09.30	SCALE
		NTS

RELEASED
2009-10-29

DEO ATTACHED

UNDER REVIEW

09/09/30

020 811 614
11.07.28

05071

85871

DRAWING NO. D212-664-241	TITLE CROSSTUBE ASSY (205/212 HI AFT)	REV. D	DART AEROSPACE LTD ENGINEERING ORDER		D.E.O. NO. D212-664-241-D-1	SHEET NO. SHEET 1 OF 2	SCALE NTS
DRAWN	CHECKED	MFG. APPR.	APPROVED	DE APPR.			
DATE 11.04.07	DATE 11.04.11	DATE 11.04.12	DATE 11/04/12	DATE 11.04.12			

PURPOSE:

ADD AN INSPECTION WINDOW TO UNDERSIDE OF CROSSTUBE.

CHANGE:

NOTES 2 OF SHEET 1 IS AMENDED AS FOLLOWS:

IS:

- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
MASK UNDERSIDE OF CROSSTUBE AS SHOWN (HATCHED AREA) AND
PAINT OUTSIDE PER DART QSI 005 4.2
REMOVE MASKING AND APPLY CLEAR COAT

WAS:

- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2

RELEASED
2011-04-18

UNDER REVIEW

11.16.13

ECN#1-614

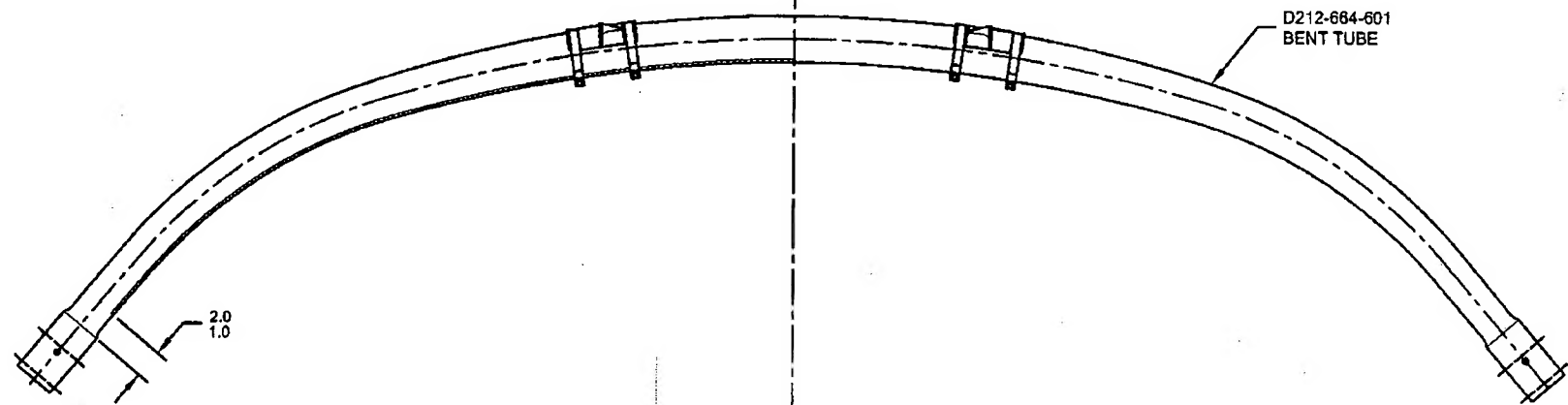
11.07.28

85871

DRAWING NO. D212-664-241	TITLE CROSSTUBE ASSY (205/212 HI AFT)	REV. D	DART AEROSPACE LTD ENGINEERING ORDER	D.E.O. NO. D212-664-241-D-1	SHEET NO. SHEET 2 OF 2	SCALE NTS
DRAWN	CHECKED <i>OP</i>	MFG. APPR. <i>E</i>	APPROVED <i>MD</i>	DE APPR. <i>MD</i>		
DATE 11.04.07	DATE 11.04.11	DATE 11.04.12	DATE 11/04/12	DATE 11.04.12		

IS:

WAS:

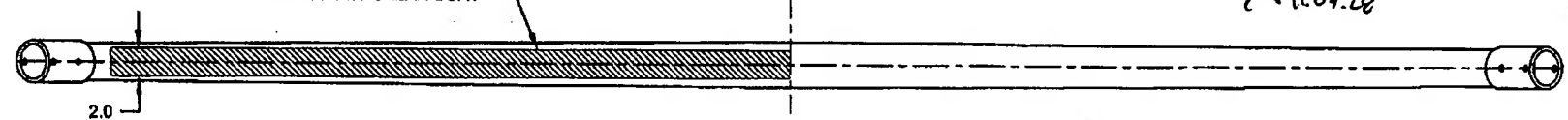


D212-664-241/-241B
ASSEMBLY DETAIL

RELEASED
2011-04-18

UNDER REVIEW

MASK AREA PRIOR TO PAINTING,
REMOVE MASKING AFTER PAINT
AND APPLY CLEAR COAT



C
SYM

85871

DRAWING NO. D212-664-241	TITLE CROSSTUBE ASS'Y (205/212 HI AFT)	REV. D	DART AEROSPACE LTD ENGINEERING ORDER		D.E.O. NO. D212-664-241-D-2	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN 92	CHECKED ASS	MFG. APPR. 8	APPROVED MD		DE APPR. H		
DATE 11.07.15	DATE 11.07.20	DATE 11.07.21	DATE 11/07/21		DATE 11.07.21		

PURPOSE:

REPLACE MAGNOBOND WITH PROSEAL.

CHANGE:

IS:

Item	Qty -241	Qty -241B	Part Number	Description
7	A/R	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

WAS:

7	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)
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NOTE 12 & 15, SHEET 1 IS AMENDED AS FOLLOWS:

IS:

- 12) TO INSTALL D2940-1 SUPPORT: ABRASE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04" TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. **PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.**

WAS:

- 12) INSTALL D2940-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2940-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

RELEASED
2011-07-28
MD